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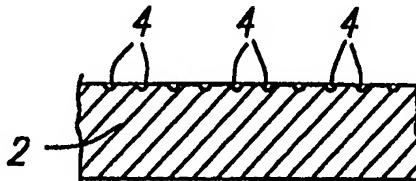
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(54) Title: PACKAGING MATERIALS AND PACKAGING TRAYS

(57) Abstract

A packaging material and a packaging tray (26) formed therefrom, said packaging material consisting of or including a layer of absorbent plastics material having surface perforations or through perforations therein. Said absorbent plastics material will be an expanded polystyrene foam of open or closed cell construction and having a core density of 30 to 150 kg/m². The packaging material may be in the form of a laminate consisting of an upper layer (12) of open cell expanded polystyrene and a lower layer (14) of closed cell expanded polystyrene. The packaging material may be provided with a surface layer of film (18) which is predominantly polystyrene based and which has through perforations therein.



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PACKAGING MATERIALS AND PACKAGING TRAYS

This invention relates to packaging materials and more particularly to such materials for use in the packaging of fruit, more specifically
05 apples and grapes.

Presently used packaging trays, which expression shall include separators and collation trays, for apples and grapes are formed of an expanded polystyrene material, such trays being planar or being
10 provided with recesses in which the fruit sits. Even with this material, the fruit packaged - sandwiched - between these trays in an outer box often becomes damaged due to inadequate drainage or inadequate absorbency of the trays, resulting in the fruit lying in water on the tray or in the recesses in the tray.

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The present invention therefore seeks to provide an improved form of packaging material and packaging trays formed therefrom, particularly for use in the packaging and transportation of apples and grapes.

20 According to one aspect of the present invention there is provided a

- 2 -

packaging material consisting of or including a layer of absorbent
plastics material having surface perforations or through perforations
05 therein.

Said plastics material will preferably be expanded polystyrene foam
and may be of open cell or closed cell construction having a core
density of 30 to 150kg/m².

10

Said packaging material may consist of a laminate comprising an upper
layer of open cell expanded polystyrene foam and a lower layer of
closed cell expanded polystyrene foam, and said upper layer may have
on its upper surface a layer of film, which will be predominantly poly-
15 styrene based.

According to a second aspect of the present invention there is provided
a packaging tray comprising or including a layer of absorbent plastics
material, said tray being substantially planar or having recesses therein
20 and being provided with surface or through perforations.

In order that the invention may be more readily understood,
embodiments thereof will now be described, by way of example,
05 reference being made to the accompanying diagrammatic drawings
wherein:

Figure 1 is a cross-section through a packaging material in accordance
with the invention;

Figure 2 shows in cross-section a modification of the packaging
10 material of Figure 1;

Figures 3 and 4 are cross-sections showing respectively modifications
to the packaging materials of Figures 1 and 2;

Figure 5 is a cross-section through a packaging material in accordance
with an alternative embodiment of the invention;

15 Figure 6 shows in cross-section a modification of the packaging
material of Figure 5;

Figure 7 shows in cross-section a modification of the packaging
material of Figure 6;

Figure 8 shows in cross-section a further modification of the packaging
20 material of Figure 5;

- 4 -

Figures 9 and 10 are cross-sections showing respectively modifications of the packaging materials of Figures 6 and 7; and

05. Figure 11 is a cross-sectional elevation through a packaging tray.

Referring to the drawings and firstly to Figure 1, the packaging material comprises a layer 2 of absorbent plastics material having a plurality of perforations 4 in its upper surface. The layer 2 is formed of

10 expanded polystyrene foam of at least partly open cell construction and has a core density of 30 to 150kg/m² and a thickness of 1.5 to 6.0mm.

The surface perforations may be formed during the formation of the material or they may be applied in a post-forming operation.

15. Figure 2 shows a modification to the packaging material of Figure 1 in that the layer 2 - of the same construction as described with reference to Figure 1 - has through perforations 6 which extend from one surface to the other of the material.

20. Figures 3 and 4 show variations or modifications to the packaging

- 5 -

materials of Figure 1 in that a surface layer or coating 8 is applied to
the surface of the layer 2 so as to form a laminate. In the case of the
05 packaging material of Figure 3, the surface layer or coating 8 has
through perforations 10 which communicate with the layer 2, whilst in
Figure 4 the packaging material has through perforations 6A which
extend from one surface of the laminate to the other. The surface layer
or coating 8 is a predominantly polystyrene based film having a
10 thickness of 15 to 150 microns.

Referring now to Figure 5, the packaging material consists of a
laminated structure comprising an upper layer 12 of open cell expanded
polystyrene foam having the same characteristics as the layer 2 in
15 Figures 1 to 4, and a lower layer 14 of closed cell expanded poly-
styrene foam. The laminate formed by the layers 12 and 14 has an
overall thickness of 1.5 to 6.0mm, and the upper layer 12 is provided
with surface perforations 16.

20 Figure 6 shows the packaging material of Figure 5 but with

- 6 -

perforations 16A extending throughout the thickness of the layer 12 so
as to communicate with the layer 14, and Figure 7 shows perforations
05 16B extending through both of the layers 12 and 14.

Figures 8 to 10 show modifications to the laminated packaging
materials of Figures 5 to 7 in that a surface layer or coating 18 - having
the same characteristics as the surface layer or coating 8 previously
10 referred to - has been applied to the outer surface of the layer 12. In
Figure 8, the perforations 20 are through perforations such that they
communicate with the layer 12, whilst in Figure 9 the perforations 22
extend through the layer 12 to communicate with the layer 14. In
Figure 10, the perforations extend through the whole laminated
15 structure.

The surface layers or coatings 8 and 18 are solid and are provided to
add a degree of rigidity to the packaging material.

20 Packaging materials as described above may be formed into packaging

- 7 -

trays - separation or collation trays - for the packaging and transportation of fruit, particularly apples and grapes. The packaging

05 trays formed of the material in accordance with the invention may be substantially planar, or they may be provided or formed with recesses to accommodate single articles of fruit such as apples or discrete bunches of grapes.

10 The presence of the perforations, either surface perforations or through perforations, enables liquid to be absorbed into the material and/or to pass through the material, such that the fruit is not lying in the liquid and hence preventing the fruit from becoming water-logged and damaged.

15

20

CLAIMS:

05 1. A packaging material consisting of or including a layer of absorbent plastics material having surface perforations or through perforations therein.

2. A packaging material according to Claim 1, wherein said plastics

10 material is expanded polystyrene foam.

3. A packaging material according to Claim 2, wherein said expanded polystyrene foam has a core density of 30 to 150kg/m².

15 4. A packaging material according to Claim 2 or Claim 3, wherein said expanded polystyrene foam is of open cell or closed cell construction.

5. A packaging material according to any of Claims 1 to 4, wherein

20 said packaging material has on its upper surface a layer of film, said

- 9 -

film being predominantly polystyrene based and having through perforations therein.

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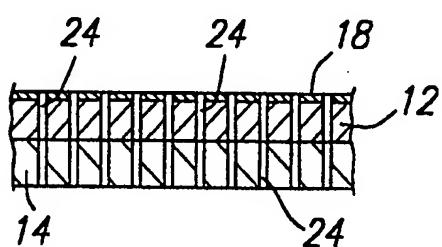
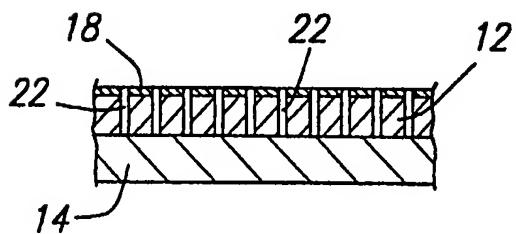
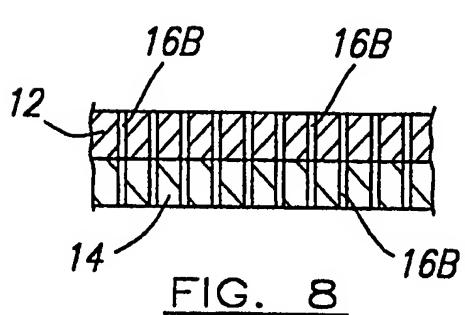
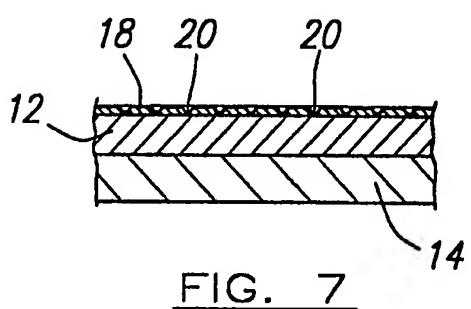
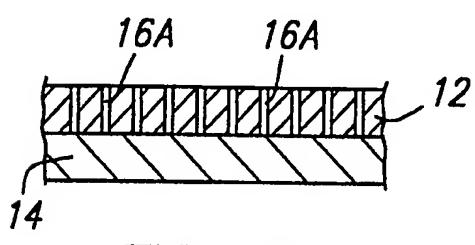
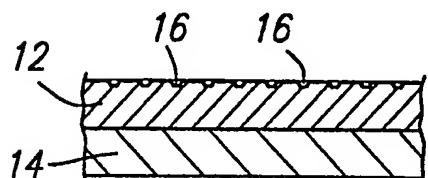
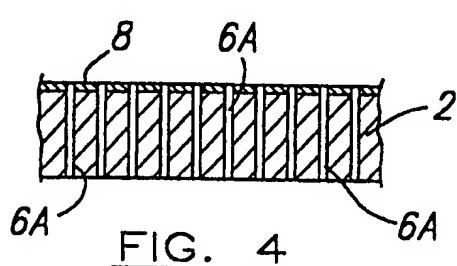
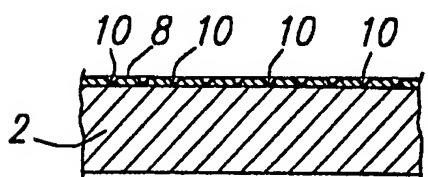
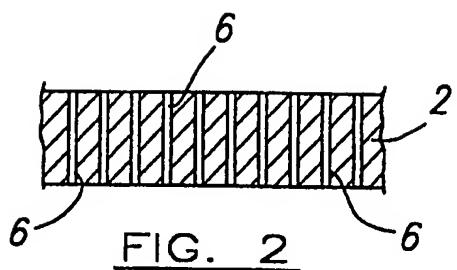
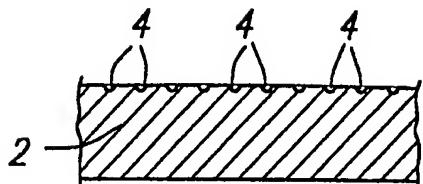
6. A packaging material according to any of Claims 1 to 4, wherein said packaging material consists of a laminate comprising an upper layer of open cell expanded polystyrene foam and a lower layer of closed cell expanded polystyrene foam.

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7. A packaging material according to Claim 6, wherein said upper layer has on its upper surface a layer of film which is predominantly polystyrene based and which has through perforations therein.

15 8. A packaging tray comprising or including a layer of absorbent plastics material, said tray being substantially planar or having recesses therein and being provided with surface or through perforations.

20 9. A packaging tray composed of any of the packaging materials according to Claims 1 to 7.



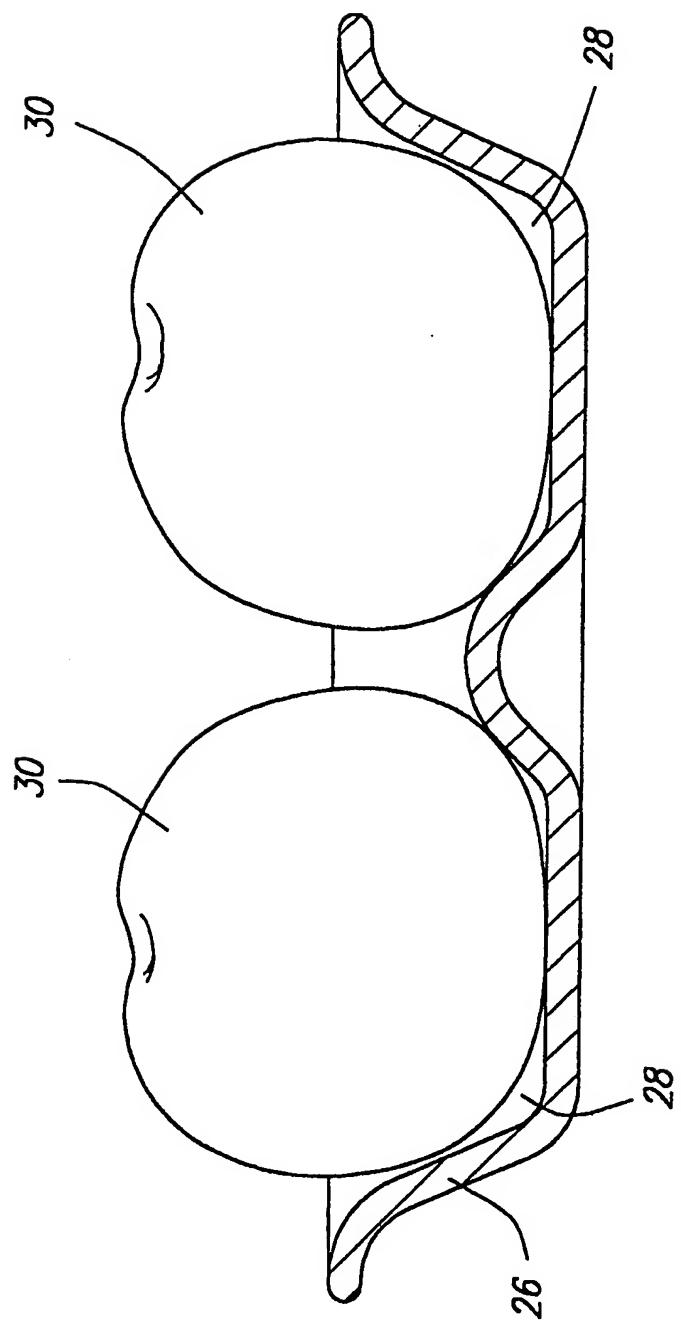


FIG. 11

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 98/03764

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B65D81/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	EP 0 849 309 A (SIRAP GEMA SPA) 24 June 1998 see column 6, line 1 - column 7, line 6; figures; examples ---	1-9
X	EP 0 754 632 A (SIRAP GEMA SPA) 22 January 1997 see column 4, line 8 - column 5, line 8; figures; examples ---	1-9
A	EP 0 743 262 A (SIRAP GEMA SPA) 20 November 1996 see column 3, line 14 - column 5, line 34; figures ---	1-9
A	US 4 702 377 A (GROENE HORST D) 27 October 1987 see abstract; figures 1-4 ---	1-9
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Patent family members are listed in annex.

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Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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